MANGU MOCK TRIAL 3

BIOLOGY

231/1

PAPER 1

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your* ***name, Index number and name of your school*** *in the spaces provided above*

b) Sign *and write the* ***date*** *of examination in the spaces provided.*

c) Answer ***all*** *the questions in the spaces provided.*

FOR EXAMINERS USE ONLY

QUESTIONS	MAXIMUM SCORES	CANDIDATE'S SCORE
1 – 26	80	

Answer ALL the questions

1. State the functions of the following cell structures during cell division: **(2 mks)**

(i) Centriole -

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(ii) Centromere –

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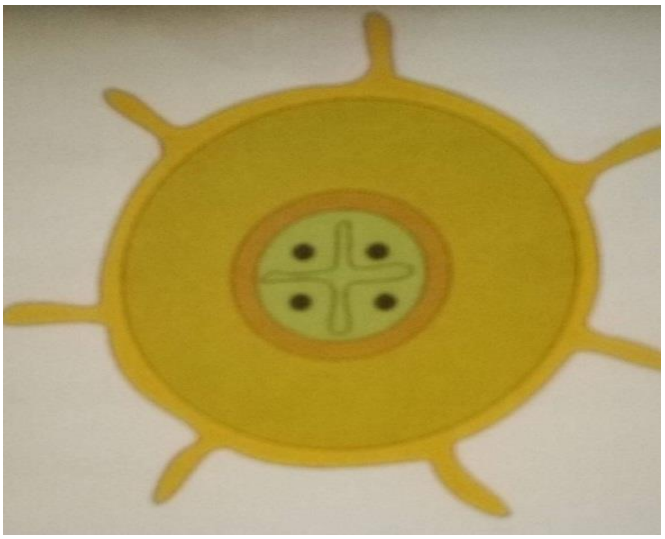
2. The diagram below represents a transverse section through a plant organ.



(a) From which plant organ was the section obtained ? **(1 mk)**

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(b) State two structural differences between ribonucleic acid (RNA) and deoxyribonucleic acid **(DNA).** **(2 mks)**

RNA	**DNA**
(i)	**(i)**
(ii)	**(ii)**

4. Explain what would happen when a marine amoeba is transferred to a fresh water environment. **(2 mks)**

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5. A small amount of chemical A was put on one side of maize coleoptiles. After some days, it was noted that the coleoptiles curved away from the side to which the chemical was applied.

(a) Suggest the possible identity of chemical substance A. **(1 mk)**

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(b) Explain how this chemical might have caused the coleoptiles to curve. **(2 mks)**

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6. State name given to the study of:-

(a) Blood –

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(b) Classification of living things –

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7. (a) Name the products of complete hydrolysis of sucrose. **(1 mk)**

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(b) What happens to the products named in (a) above, when they are excess to the body. **(2 mks)**

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8. (a) Give the formula for calculating linear magnification of a specimen when using a hand lens. **(1 mk)**

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(b) Give one functional advantage of each of the following parts of a microscope. **(2 mks)**

(i) Light microscope –

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(ii) Electron microscope –

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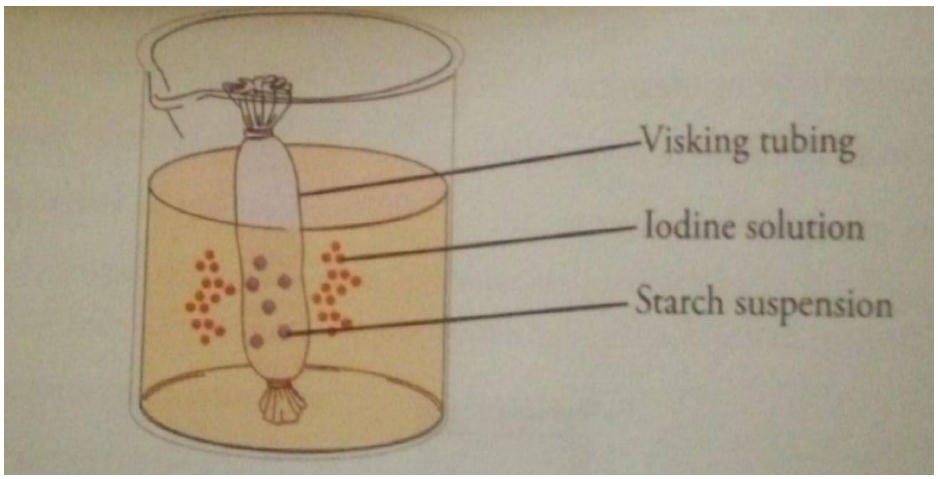
9. An investigation was set up as shown in the diagram below



After 30 minutes, starch suspension had turned to blue-black while iodine solutions retained its colour

(a) Name the physiological process that was being investigated in the experiment.

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(b) Account for the results observed after 30 minutes. **(2 mks)**

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10. (a) Name the respiratory surface in insects. **(1 mk)**

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(b) State any one feature that adapts the structure named in (10 a) above to its function.

(1 mk)

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11. Name the hormone involved in the following stages of insect metamorphosis**.** **(2 mks)**

(a) (i) Formation of the larval cuticle –

(ii) Moulting in insects leading to the laying of adult cuticle

(b) Outline the stages of metamorphosis in:- **(2 mks)**

(i) A cockroach –

(ii) A butterfly -

12. The diagram below shows a bone that was obtained from a mammal.

(a) Identify the bone. **(1 mk)**

(b) (i) Name the type of joint formed at the part marked P. **(1 mk)**

(ii) State one characteristic of the joint named in (b) above. **(1 mk)**

(c) What is the function of the part labeled Q. **(1 mk)**

13. When setting up a photometer; explain why the leafy shoot is cut under water. **(1 mk)**

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14. (a) In view of modern gastric; explain why Lamarck's theory of evolution is inacceptable.

(2 mks)

(b) A cow produced a calf with five legs. What is the genetic term used for such a calf.

(**1 mk)**

15. Name the hormone produced to the human body when:- **(3 mks)**

(i) Blood glucose level is low –

(ii) Amount of sodium ions in blood is below normal

(iii) One is facing imminent danger.

16. A process that occurs in some organisms is represented by the equation below,.

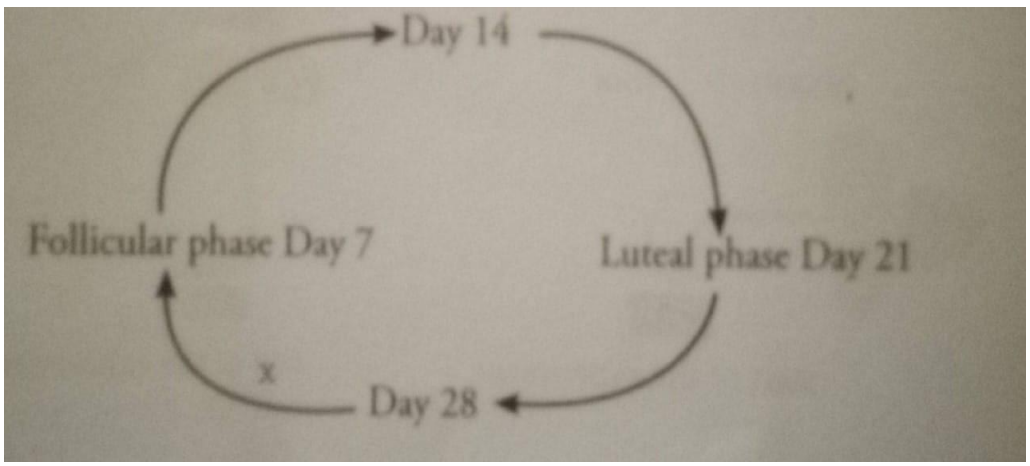
$C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2 + \text{Energy}$

(a) Name the process. **(1 mk)**

(b) State the names of compound K. **(1 mk)**

(c) State the economic importance of the above reaction in Kenyan industries. **(1 mk)**

17. The diagram below represents a summary of the main phases of human menstrual cycle.



(a) Name process labeled X. **(1 mk)**

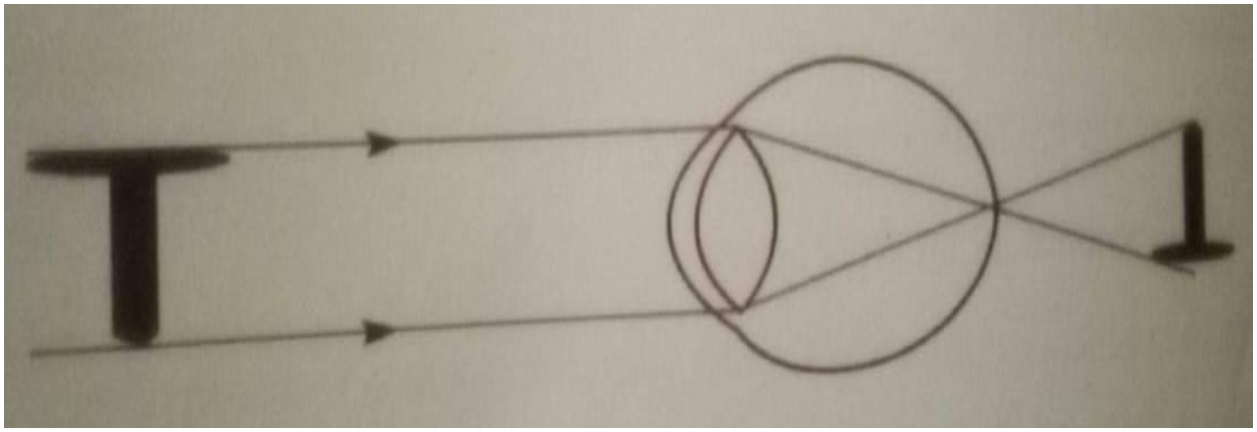
(b) Name the hormone responsible for the process that takes place in day 14. **(1 mk)**

(c) State two secondary sexual characteristics in female. **(2 mks)**

18. A form one student observed a cell under a light microscope which had a field of view of 4.2mm. This length was occupied by 7 cells. Work out the appropriate length of such cell in micrometers. **(2 mks)**

(b) Explain why microscope sections are required to very thin. **(1 mk)`**

19. The diagram below shows the position of an image formed in the human eye.



(a) Name the defect. **(1 mk)**

(b) Explain how the defect named in (a) above can be corrected. **(2 mks)**

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20. Distinguish between guttation and transpiration. **(2 mks)**

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21. (a) Two species in an ecosystem cannot occupy the same niche. Explain. **(2 mks)**

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(**b)** Define the term discontinuous variation. **(1 mk)**

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(c) State two examples of discontinuous variation. **(2 mks)**

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22. (a) State two uses of ATP energy in living organisms. **(2 mks)**

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(b) What do you understand by the term Oxygen Debt? **(1 mk)**

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(c) State the significance of respiratory quotient. **(2 mks)**

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23. State three differences between endocrine system and nervous system. **(3 mks)**

Endocrine System	Nervous System
(i)	(i)
(ii)	(ii)
(iii)	(iii)

24. (a) Distinguish between a hinge joint and a ball and socket joint. **(1 mk)**

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(b) Name the cartilage found between the bones of the vertebral column. **(1 mk)**

(c) State the function of the cartilage named in (b) above. **(1 mk)**

25. In an experiment, it was observed that when termites are exposed to light, they move to darker ends.

(a) Name the type of response exhibited by termites. **(1 mk)**

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(b) What are the survival values of the type of response exhibited by the termites. **(2 mks)**

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26. (a) State where the following processes occur during photosynthesis:-

(i) Light stage **(1 mk)**

(ii) Dark stage **(1 mk)**

(b) State two importance of light during photosynthesis. **(2 mks)**